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The Newest Goal for Science Education

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Four years ago Helgeson and his co-workers at the ERIC/SMEAC center at Ohio State reported that the goals in science education were in a period of major transition (Helgeson, et al., 1977). Three years ago NSTA published a working paper entitled, *Science Education: Accomplishments and Needs*, in which new goals for the discipline were identified (NSTA, 1978). Recently the NSTA Research Committee completed a research project — one facet of which determined the degree of agreement about such major changes in goals as well as an indication of the nature of new goals (Yager, 1980).

This study involved five hundred leaders in each of five categories, including one hundred elementary teachers, secondary science teachers, supervisors, teacher educators, and researchers. Leaders were defined as officers, committee members, and/or program presenters associated with CESI (elementary teachers), NSTA (secondary teachers), NSSA (supervisors), AETS (teacher educators), and NARST (researchers).

One of the most general areas of agreement came from the introduction to the working paper which identified the interdependence of science teaching and society as the most appropriate point of departure for discussing the discipline and the setting for an analysis of the accomplishments and needs of the profession. Although there were some general concerns in 1980 for the designation of societal issues on "the most" significant influence on science teaching of the 1980's, the majority of the leadership agreed. Such degrees of support identifies a major new direction and a basic new goal for science education.

The 1981 analysis of the accomplishments and needs of science education also verified the general agreement from within the discipline concerning the change in goals and focus for the profession. Except for teacher educators, the majority of the leadership in four groups agreed that goals are in transition. Two-thirds of the supervisors and the researchers agreed.

When asked to identify such new goals in an open question format, by far the most common new goals were concerned with the science/society interface. Some mentioned science/society/technology; many mentioned major societal problems as a focus for study. Others used the term scientific literacy in today's world as the most important goal for school science.

To be sure, many continue to identify experience with central concepts and the basic processes of science as major goals. However, the major discussion and controversy concerning content (concepts) versus

process science is out-of-date. Although the big ideas of the disciplines of science and the processes employed by scientists in sciencing remain important dimensions for science teaching, they may no longer be the most important goals in shaping curriculum, methodology, teacher preparation, evolution, and other critical elements of the field.

Some are beginning to review science education as a maturing discipline in and of itself. This new discipline is primarily concerned with the interface between science and society. It is concerned with the interpretation of science to the public and the use of scientific knowledge for the betterment of humankind. The discipline is also concerned with the affects science has upon society. Studying the interface is similar to studying the cell membrane — the interface between a functioning cell and its environment. Membrane physiology is an extremely active and significant research area in biology. So should be such a study of the science/society interface in education.

This view of science education provides a framework for school science, for non-school science study, for research, for curriculum development. It also utilizes the newest and most inclusive goal for our discipline. Such a setting for science education has implications for every science teacher, every science classroom, every science teaching organization, every curriculum and research effort in science education.

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Chem Gems and Joules

About thirty years ago it was discovered that crunching on mint Lifesavers will produce green sparks and a crackling noise. Peppermint Lifesavers will produce similar results. According to Lifesavers, Inc. of New York, the mint Lifesavers contain sugar and methyl salicylate (a component of the mint flavoring). When these two compounds are crunched together, a crystalline energy is produced which stimulates the methyl salicylate to emit light. The process is known as triboluminescence.

A cool, dry day, a fresh pack of Lifesavers, a dark room, and strong teeth are necessary for this demonstration. This is an excellent take-home experiment. It is bound to help generate a scientific interest in all members of the family (plus boost the sale of Lifesavers).

Karen Tashima
Chem 13 News; Dec. 1980.